Syriation & Satyriaſin *iiſdem fere literis ſcribantur, neq; multum tranſpoſitis: deinde quod particula iſta & Copulativa potius videatur, ac* Syriation *morbi nomen in Accuſandi caſu innuat; quam quod pro* etiam *Intendendi Adverbium ponatur, ac* Syriation *ſit nomen Medici cujuſdam obſcuri. Voce vero* Vomica *hic peculiariter utitur Plinius, non pro Apoſtemate, ſed pro fluore quodam Uteri, id quod ex alio Plinii dicto patet.* Eſt lapis in Venis cujus Vomica liquoris æterni Argentum vivum dicitur, venenum rerum omnium. *Lib.* 33. *cap.* 6. *Ubi* Vomica *pro fluore è Lapide manante dicitur. Quod autem Mentha has etiam vires habeat, audiamus* Raium *noſtrum Botanicorum præſtantiſſimum, Hiſt. Plant. pag.* 532. Mentha Menſes & album Mulierum profluvium efficaciter compeſcit. *An vero de alio quodam Mulierum effectu hæc* Plinii *verba capienda ſint ad Medicos referendum eſt.*

An account of the Meaſure of the thickneſs of Gold upon Gilt-Wire, together with a demonſtration of the exceeding minuteneſs of the Atoms or conſtituent Particles of Gold; as it was read before the R. Society, *by* E. Halley.

WHat are the Conſtituent parts of Matter, and how there comes to be ſo great a diverſity in the weight of Bodies to all appearance equally ſolid and denſe, ſuch as are Gold and Glaſs, (whoſe ſpecifick Gravities are nearly as 7 to 1) ſeems a very hard queſtion to thoſe that ſhall rightly conſider it: For from unboubted experiment, Gravity is in all Bodies proportionable to the quantity of Matter in each, and there is no ſuch thing as a propenſion of ſome more others leſs, towards the Earths Center; ſince the Impediment of the

of the Air being removed, all Bodies deſcend, be they never ſo looſe or compact in texture, with equal velocity. It follows therefore, That there is 7 times as much matter in Gold as in a piece of Glaſs of the ſame Magnitude; and conſequently, that at leaſt ſix parts of ſeven in the bulk of Glaſs, muſt be Pore or Vacuity: This ſome favourers of the Atomical Philoſophy have endeavoured to Solve, ſuppoſing the primary or conſtituent Atoms of Gold to be much larger than thoſe of other Bodies, and conſequently the Pores fewer; whereas in other Bodies, the great multitude of the interſperſed Vacuities does diminiſh their Weighs.

Being deſirous to examine this Notion of the Magnitude of Atoms of Gold, I bethought my ſelf of the Extreme Ductility of that Metal, which is ſeen in the beating of it into Leaf, and above all in the drawing fine Gilt-Wire; by means whereof, I believed I might moſt exactly obtain the true thickneſs of the Coat of Gold that appears even with the Mic oſcope, ſo well to repreſent Gold itſelf, that not the leaſt point of Silver appears through it. In order to this, I inform'd my ſelf among the Wire-Drawers, what Gold they us'd to their Silver, and they told me, That the very beſt double Gilt-Wire, was made out of Cylindrick Ingots 4 Inches in circumference, and 28 Inches long, which weigh 16 Pounds Troy; on theſe they beſtow 4 Ounces of Gold, that is, to every 48 Ounces of Silver one of Gold: and that two Yards of the ſuper-fine Wire weighs a Grain. Hence at firſt ſight it appear'd, that the length of 98 Yards is in weight 49 Grains, and that a ſingle Grain of Gold covers the ſaid 98 Yards, and that the 10000th part of a Grain is above $\frac{1}{3}$ of an Inch long; which yet may be actually divided into 10, and ſo the 100000th. part of a Grain of Gold is viſible without a Microſcope. But being deſirous to compute the thickneſs of the Skin of Gold: by means of the ſpecifick

Gravities of the Metals, *viz.* Silver $10\frac{5}{8}$, and Gold $18\frac{3}{8}$, I found the Diameter of ſuch Wire the $\frac{1}{3\,8\,6}$ part of an Inch, and its circumference the $\frac{1}{1\,2\,3}$ part; but the Gold in thickneſs not to exceed the $\frac{1}{1\,3\,4\,5\,0}$ part of an Inch; whence it may be concluded, that the Cube of the hundreth part of an Inch would contain above 2433000000, (or the Cube of 1345) of ſuch Atoms. And it may likewiſe be marvelled at, that Gold being ſtretcht to ſo great a degree as is here demonſtrated, ſhould yet ſhew itſelf of ſo even and united a Texture, as not to let the white Colour of the Silver under it appear through any the leaſt Pores; which argues that even in this exceeding thinneſs, very many of thoſe Atoms may ſtill lie one over the other: Which is a Conſideration may merit the Thoughts of this Honourable Society, as tending to examine that renowned Atomical Doctrine, which has of late much obtained among the Learned.

Obſer-